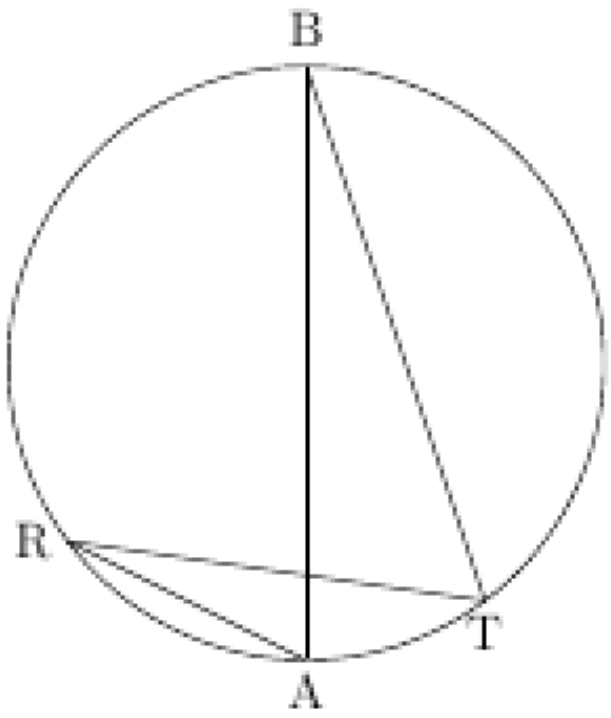
Topic: Inscribed angles of circles

Question: Find the sum of the angles.

In the circle, the measure of arc AT is $36°$. What is the sum of $m\angle TBA + m\angle TRA$?



Answer choices:

A $0°$

B $36°$

C $48°$

D $72°$

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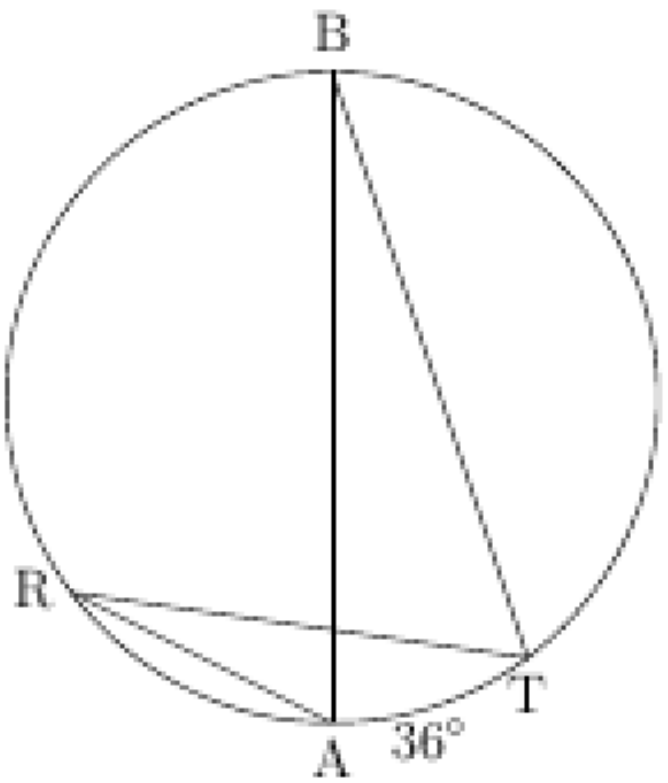
Solution: B

$\angle TBA$ is an inscribed angle so its measure is half of its intercepted arc.

$$m\angle TBA = \frac{1}{2}(36^\circ) = 18^\circ$$



$m\angle TRA$ is half of the very same arc, so $m\angle TRA = 18^\circ$.

Their sum will be

$$18^\circ + 18^\circ = 36^\circ$$

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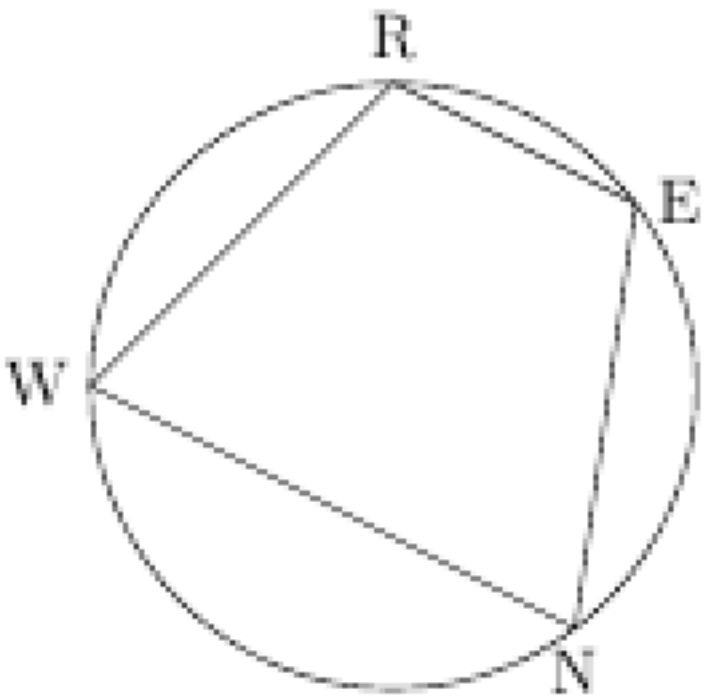
Question: What is the measure of the angle?

In the circle, $m\angle N = 50°$, the measure of arc RW is $70°$, and the measure of arc EN is $110°$. What is $m\angle W$?



Answer choices:

A $55°$

B $60°$

C $65°$

D $70°$

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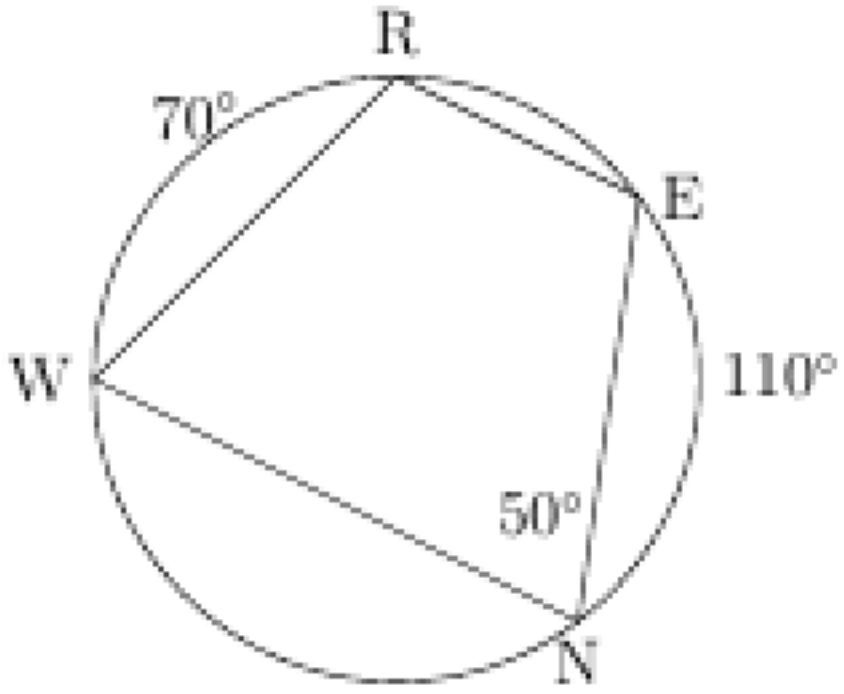
Solution: D

$m\angle N$ (which is $50°$) is half of the measure of arc WE.



So the measure of arc WE must be $100°$.

$$WE = WR + RE$$

$$100° = 70° + RE$$

$$RE = 30°$$

Now we know that

$$RE + EN = 140°$$

$$\angle W = \frac{1}{2}(140°) = 70°$$

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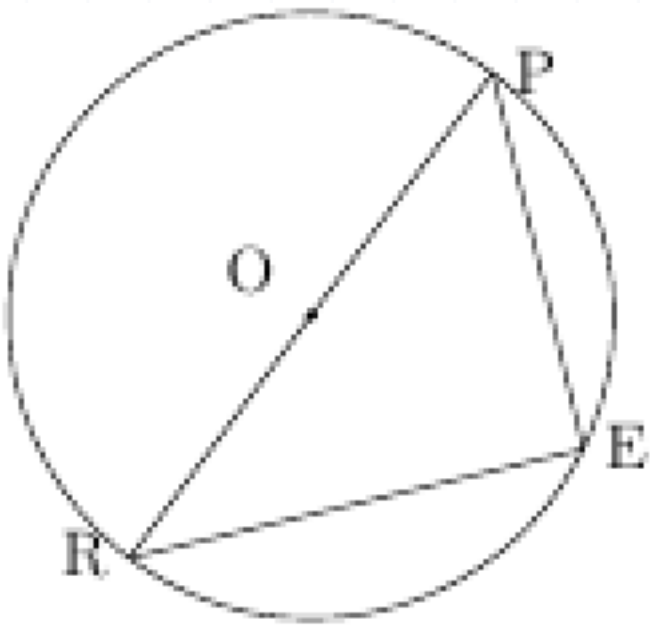
Topic: Inscribed angles of circles

Question: Find the angle measure.

In $\odot O$, $\overline{RP}$ is a diameter. $m\angle R = 5x + 6$ and $\angle P = 6x + 7$. What is $m\angle R$?



Answer choices:

A $41°$

B $45°$

C $49°$

D $54°$

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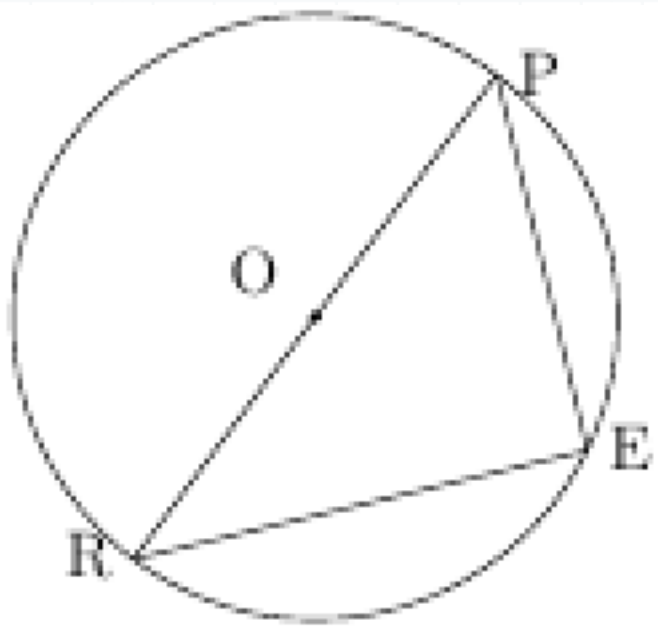
Solution: A

$\angle E$ is inscribed in a semicircle so it has a measure of $90°$.



The sum of all three angles is $180°$ so

$$m\angle R + m\angle P = 90°$$

Substitute and solve for x.

$$5x + 6 + 6x + 7 = 90$$

$$11x + 13 = 90$$

$$11x = 77$$

$$x = 7$$

So

$$m\angle R = 5x + 6 = 5 \cdot 7 + 6 = 41$$

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